Paper No. 28

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte DONALD J. MacLEOD

Appeal No. 1998-1794
Application 08/738,467[1]

ON BRIEF

Before BARRETT, FLEMING, and BARRY, Administrative Patent Judges.

BARRETT, Administrative Patent Judge.

DECISION ON APPEAL

[1] Application for patent filed October 24, 1996, entitled "Spindle Motor Assembly For Disc Drives," which is a continuation of Application 08/316,800, filed October 3, 1994, now abandoned, which is a continuation of Application 07/745,983, filed August 6, 1991, now U.S. Patent 5,352,947, issued October 4, 1994.

This is a decision on appeal under 35 U.S.C. § 134 from the final rejection of claims 9-43.

We affirm-in-part.

BACKGROUND

The disclosed invention relates to a spindle motor assembly for a hard disc drive.

Claim 9 is reproduced below.

> 9. A spindle motor assembly comprising:
>
> a fixed shaft;
>
> a spindle hub journaled coaxially for rotation about the fixed shaft, the spindle hub having inner and outer surfaces, an enlarged thickness flange portion with a support surface for supporting a disc stack, and a reduced thickness rotor carrying portion located adjacent the bearing means rotatably coupling the spindle hub to the fixed shaft;
>
> magnet means carried by an outer surface of the rotor carrying portion of the spindle hub, the magnet means having a plurality of poles, and forming the rotor portion of the spindle motor; and
>
> stator means having a plurality of fixed windings for cooperating with the magnet means to rotate the spindle hub with respect to the shaft.

The Examiner relies on the following prior art:

MaCleod [sic, MacLeod] 4,488,076 December 11, 1984
Yamashita et al. (Yamashita) 4,552,417 November 12, 1985

Moon et al. (Moon)	4,712,146	December 8, 1987
Hajec	4,734,606	March 29, 1988
Rabe	4,763,053	August 9, 1988
Shirotori	4,818,907	April 4, 1989
Petersen	4,949,000	August 14, 1990

Claims 20-30 stand rejected under 35 U.S.C. § 112, second paragraph, as failing to particularly point out and distinctly claim the subject matter which applicant regards as his invention.

The prior art rejections do not address the patentability of claims 28, 29, 34, and 38 under 35 U.S.C. §§ 102 or 103. This appears to be a result of carelessness, since the Examiner has not indicated that the claims are objected to. We place these claims in the rejection with the claims from which they depend.

Claims 9, 10, 12, 14, 15, 31, 32[2], 39, 40, and 42 stand rejected under 35 U.S.C. § 102(b) as being anticipated by Hajec.

Claims 11, 33, and 34[3] stand rejected under 35 U.S.C. § 103(a) as unpatentable over Hajec and MacLeod.

Claims 13, 17, and 43 stand rejected under 35 U.S.C. § 103(a) as unpatentable over Hajec and Shirotori.

Claims 16, 20, 21, 25, 27, 35-38[4], and 41 stand rejected under 35 U.S.C. § 103(a) as unpatentable over Hajec and Rabe.

Claims 18 and 19 stand rejected under 35 U.S.C. § 103(a) as unpatentable over Hajec and Yamashita.

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[2] The statement of the rejection in the Final Rejection refers to claims "31-31," which we interpret as a typographical error that should have read "31-32." This is confirmed by the statement of the rejection in the Examiner's Answer.

[3] Claim 34 has not been rejected or indicated to be allowable. Because claim 35, which depends on claim 34, has been rejected, it is certain that claim 34 was intended to be rejected. We group it with the § 103(a) rejection over Hajec. Since dependent claims 35-37 have been rejected over Hajec and Rabe, this should not create a new ground of rejection.

[4] Claim 38 has not been rejected or indicated to be allowable. We treat it with the § 103(a) rejection of its parent claim 35 over Hajec and Rabe.

Claims 22-24, 28, and 29[5] stand rejected under 35 U.S.C. § 103(a) as unpatentable over Hajec, Rabe, and Petersen.

Claim 26 stands rejected under 35 U.S.C. § 103(a) as unpatentable over Hajec, Rabe, and Yamashita.

Claim 30 stands rejected under 35 U.S.C. § 103(a) as unpatentable over Hajec, Rabe, Petersen, and Moon.

We refer to the Final Rejection (Paper No. 15) (pages referred to as "FR__") and the Examiner's Answer (Paper No. 24) (pages referred to as "EA__") for a statement of the Examiner's position, and to the Appeal Brief (Paper No. 23) (pages referred to as "Br__") for Appellant's arguments thereagainst.

OPINION

Only argued limitations are addressed

We confine our analysis to issues and differences argued in the brief. Under USPTO rules, an appellant's brief is required to describe how the claims distinctly claim the invention and to specify the particular limitations in the rejected claims which are not described in the prior art or

[5] Claims 28 and 29 have not been rejected or indicated to be allowable. We treat them with the § 103(a) rejection of their parent claim 22 over Hajec, Rabe, and Petersen.

rendered obvious over the prior art. See 37 CFR § 1.192(c)(8)(ii), (iii) & (iv). Cf. In re Baxter Travenol Labs., 952 F.2d 388, 391, 21 USPQ2d 1281, 1285 (Fed. Cir. 1991) ("It is not the function of this court to examine the claims in greater detail than argued by an appellant, looking for nonobvious distinctions over the prior art."); In re Wiechert, 370 F.2d 927, 936, 152 USPQ 247, 254 (CCPA 1967) ("This court has uniformly followed the sound rule that an issue raised below which is not argued in this court, even if it has been properly brought here by a reason of appeal, is regarded as abandoned and will not be considered. It is our function as a court to decide disputed issues, not to create them."); In re Wiseman, 596 F.2d 1019, 1022, 201 USPQ 658, 661 (CCPA 1979) (arguments must first be presented to the Board before they can be argued on appeal). We are not prescient and cannot address arguments that have not been made.

35 U.S.C. § 112, second paragraph

The Examiner finds no antecedent basis for "said bearing means" in claim 20 and rejects claims 20-30 under 35 U.S.C. § 112, second paragraph. Appellant's brief does not address this rejection. We agree with the rejection. The phrase

would be corrected by changing "said bearing means" to "said bearings." The rejection of claim 20, and claims 21-30 which depend on claim 20, is sustained.

35 U.S.C. § 102(b)

Hajec discloses a spindle motor where the motor lies inside the hub and clearly does not show Appellant's disclosed spindle motor assembly configuration. Nevertheless, despite the differences in structure, it is always possible that the claim language is so broad that it reads on Hajec in an unintended manner. This is the case here. For example, independent claim 9 does not particularly define the spindle hub to be generally cylindrical with the enlarged thickness flange portion and the reduced thickness rotor carrying portion being thicknesses of the cylinder wall and lying along the length and, so, does not distinguish over the cup-shaped hub in Hajec.

Claims 9, 10, and 12

The language of claim 9 does not exclude the enlarged thickness flange portion of the spindle hub from radially overlying the reduced thickness rotor carrying portion as in

Hajec. We consider figure 1 of Hajec. The claimed "spindle hub" reads on the outer sleeve 20 and the rotatable outer hub 16 taken together. The assembly of 20 and 16 is "journaled coaxially for rotation about the fixed shaft." Claim 9 recites "the spindle hub having inner and outer surfaces," but does not further refer to these surfaces; the subsequent limitation of "an outer surface of the rotor carrying portion of the spindle hub" refers to an outer surface of the rotor carrying portion, not the outer surface of the spindle hub. The claimed "enlarged thickness flange portion with a support surface for supporting a disc stack" reads on the flange portion (unnumbered) of hub 16 which supports the disc 12; the thickness (diameter) of the flange is enlarged compared to the diameter of the hub 16. The claimed "reduced thickness rotor carrying portion adjacent the bearing means" reads on the outer sleeve 20; the thickness (diameter) is reduced compared to the diameter of hub 16. The "magnet means" reads on magnets 28, which are carried by an outer surface of the rotor carrying portion, sleeve 20. The "stator means" reads on stator core 34. Thus, we find claim 9 anticipated by Hajec.

We now address Appellant's arguments.

Appellant argues (Br7) that Hajec does not have a "reduced thickness rotor carrying portion adjacent the bearing means" as recited in claim 9.

We disagree. Sleeve 20 has a reduced thickness (diameter) as compared to the thickness (diameter) of the hub 16. Appellant appears to rely on disclosed limitations that are not claimed.

Appellant argues (Br7) that Hajec does not have "magnet means carried by an outer surface of the rotor carrying portion of the spindle hub" (emphasis added) (claim 9), because magnets 28 in Hajec are carried at an inner surface of the rotor.

We disagree. Claim 9 recites "magnet means carried by an outer surface of the rotor carrying portion of the spindle hub," which refers to an outer surface of the rotor carrying portion, not an outer surface of the spindle hub. The way claim 9 is drafted allows the interpretation that the outer surface of the spindle hub is not the outer surface of the rotor carrying portion. Sleeve 20 is the rotor carrying

portion of the spindle hub and the magnets 28 are carried on an outer surface of 20.

Appellant argues that "instead of employing bearings as set forth and claimed in Appellant's invention, Hajec uses a ferro-fluid lubricant which is held in gap 26 between shaft 18 and sleeve 20" (Br7).

Claim 9 recites "bearing means," not any particular bearing structure. We find the ferrofluid bearing in Hajec equivalent to the disclosed ball bearings.

For the reasons stated above, Appellant fails to show that the anticipation rejection of claim 9 is in error. Claims 10 and 12 stand or fall together with claim 9. The rejection of claims 9, 10, and 12 is sustained.

Claims 14 and 15

Appellant argues (Br7), with respect to claim 14, that Hajec does not have "stator means being located near said base end of said shaft" (claim 14). The Examiner states that "near" is a relative term and does not distinguish over Hajec (EA5).

We agree with the Examiner that "near" is relative and does not define over Hajec. Also, the "base end" can refer to a region of the shaft, not just the very bottom of the shaft, which makes the term "near" even less precise. The spindle hub is more broadly recited in claim 14 than in claim 9 and the limitations of the hub have not been argued. For these reasons, we conclude that Appellant has failed to show error in the anticipation rejection of claim 14. Claim 15 falls together with claim 14. The rejection of claims 14 and 15 is sustained.

Claims 31 and 32

Appellant argues (Br8), with respect to claim 31, that the Examiner has admitted that Hajec does not have a plurality of poles and the anticipation rejection must be reversed. The Examiner states that the statement is taken out of context from an obviousness rejection and that Hajec does teach a magnet means with a plurality of poles (EA6).

The Examiner's rejection did state that Hajec does not disclose a magnet with a plurality of poles (FR3). However, it is clear that what the Examiner meant was that Hajec does not disclose a magnet with a plurality of poles where each

pole generates fields having two separate orientations. One of ordinary skill in the art would have known that all magnets have a plurality of poles (i.e., at least north and south poles). Hajec would not work without at least two poles. Appellant has not otherwise argued the limitations of claim 31. Claim 32 falls with claim 31. The rejection of claims 31 and 32 is sustained.

Claims 39, 40, and 42

The rejection of claim 39 has not been argued. Therefore, the rejection of claims 39, 40, and 42 is sustained. It is noted that the assembly of Hajec is intended to be placed in a housing (not shown) to keep out dust and dirt.

35 U.S.C. § 103(a)

Claims 20-30

Appellant argues (Br7-8) that Hajec does not disclose "said spindle hub also supporting said disc on a flange extending out from said inner bore above said magnet means and over a region where stator coils of said motor are located" (claim 20). The Examiner finds that hub 16 is in the form of

a flange which extends from an inner bore defined by the outer surface of the sleeve 20 and over the stator (EA5).

We disagree with the Examiner's interpretation. Claim 20 requires the flange supporting the disc to extend over a region where the stator coils are located. The flange of the hub 16 supporting the disc 12 is outside the motor and does not extend over the stator coils. The Examiner's apparent interpretation that the whole hub 16, not just the flange supporting disc 12, is the claimed flange is not considered reasonable.

The Examiner has also applied Rabe as showing a housing having upper and lower casings. Rabe, figure 3, discloses a motor having an internal rotor which is very similar in structure to Appellant's disclosed spindle motor except that the rotor magnets 131 are mounted at a greater diameter on the spindle hub (rotor body 130) than Appellant's magnets, probably to achieve greater torque and at the same time to leave room for the electrical control circuit 123. However, Rabe does not cure the deficiency of Hajec because the flange portion supporting the rotating recording media 104, 104' is radially inward of the stator coils 120. Accordingly, we

conclude that the Examiner has failed to establish a prima facie case of obviousness. The rejection of claims 20, 21, 25, and 27 is reversed.

Petersen has been added to the rejection as to claims 22-24 (and, presumably, claims 28 and 29 as noted in footnote 5); Yamashita has been added as to claim 26; and Petersen and Moon have been added as to the rejection of claim 30. These references do not overcome the deficiencies of Hajec and Rabe. The rejections of claims 22-24, 26, and 28-30 are also reversed.

Claims 11, 33, and 34

The Examiner finds that MacLeod discloses that it was well known to provide a rotor magnet having a multiplicity of poles with each pole magnetized to generate fields having two separate orientations and concludes that it would have been obvious to form the magnet in Hajec as taught by MacLeod (FR3-4).

Appellant argues that it is not possible to mount MacLeod's main field magnet on the inner surface of Hajec's hub 16 due to the presence of the stator core 34 located

immediately inwardly adjacent hub 16 as shown in Hajec's figure 1 (Br12).

We do not agree with Appellant's argument. First, Hajec itself discloses magnets with two separate orientations which are integrated to form permanent magnets 108A' (figures 3 and 7; col. 6, lines 29-37). The lower magnets 114 in Hajec help confine the ferrofluid lubricant and are not for Hall sensors; however, claims 11 and 33 do not recite any functions for the different orientations. Second, one of ordinary skill in the art would have had no problem replacing the cylindrical magnet 28 in Hajec with the cylindrical magnet with two orientations of MacLeod because the outer shapes are identical. The rejection of claims 11, 33, and 34 is sustained.

Claims 13, 17, and 43

The Examiner finds that Shirotori discloses that it was well known to provide a magnetic ring 16 on which the rotor magnet 17 is mounted to establish a magnetic circuit, and concludes that it would have been obvious to provide a ferric ring in Hajec to provide a flux return path (FR4-5). The Examiner further finds that Shirotori teaches threaded openings in the hub for a screw 15 to secure a disc clamp 14

with a shield to close the inner end of the opening, and concludes that it would have been obvious to secure the discs in Hajec by the same structure (FR4-5).

Appellant does not argue the limitations of claims 13 and 17. The rejection of claims 13 and 17 is sustained.

Appellant argues, with respect to claim 43, that the screw 15 in Shirotori is not positioned for holding a disc clamp atop a disc and that Shirotori does not disclose a shield provided at the bottom of the screw holes facing the stator coils (Br12-13).

We disagree with Appellant's arguments regarding claim 43. Figure 1 of Shirotori shows a screw 15 into the spindle hub which holds a disc clamp 14 against a stack of discs 12. The bottom of the hole for the screw has a shield (unnumbered). It would have been obvious to apply the disc mounting structure of Shirotori to Hajec since the motors are similar in configuration and because Hajec does not disclose any particular way to mount the discs. The rejection of claim 43 is sustained.

Claims 16, 35-38, and 41

The Examiner finds that Rabe, figure 3, discloses a housing 102 having upper and lower casing portions and discloses mounting the motor on a separate base plate 110 making the motor interchangeable with the rest of the housing (FR5). The Examiner further finds that the base plate has a well into which the stator coils and rotor magnet extend (FR5). The Examiner concludes that it would have been obvious to modify Hajec to provide these features (FR5).

Appellant argues that even if Rabe teaches mounting the motor on a separate base plate making the motor interchangeable with the rest of the housing, the invention has a cylindrical well recess 90 formed in the lower casing member 9, whereas Rabe comprises a separate unit which is positioned to fit into a bottom hole of housing 102 (Br13).

Appellant's arguments do not apply to claim 16, which recites a base plate for mounting the assembly to the drive housing. Rabe teaches mounting the motor on a separate base plate making the motor interchangeable with the rest of the housing. Further, it appears that the base 14 in Hajec is not part of the housing and is intended to mount the assembly to the housing. The rejection of claim 16 is sustained.

Claims 35 and 41 recite that the magnet means and stator means are disposed in a well in the lower casing. While the cup-shaped motor casing 111 in Rabe could be considered part of the lower portion of housing 102, we do not see how Hajec could be modified to fit into a well. The motor in Hajec is inside the hub: if the hub were recessed into a well as in Rabe it would be impossible to mount the magnetic discs. The reason the motor in Rabe can fit into a well is because the motor sits below the flange mounting the discs. While it is true that the test of obviousness is what the references would collectively have suggested to one of ordinary skill in the art, not whether the teachings can be bodily incorporated, the teachings of recessing the motor in Rabe are inconsistent with the motor configuration in Hajec. Accordingly, the Examiner has failed to establish a prima facie case of obviousness with respect to claim 35 and 41. The rejection of claims 35-38 and 41 is reversed.

Claims 18 and 19

The Examiner finds that Yamashita teaches that it was well known to utilize screws to attach a fixed shaft to the

motor casing and concludes that it would have been obvious to fasten the shaft of Hajec to the base with a screw (FR6).

Appellant argues that even if it were obvious in view of Yamashita to use a screw to fasten the shaft to the base of the Hajec motor, it is not understood how this would render Appellant's invention obvious (Br13-14).

Appellant has not attempted to point out the error in the rejection of claims 18 and 19. The rejection of claims 18 and 19 is sustained.

CONCLUSION

The rejection of claims 20-30 under 35 U.S.C. § 112, second paragraph, is sustained.

The rejection of claims 9, 10, 12, 14, 15, 31, 32, 39, 40, and 42 under § 102(b) is sustained.

The rejections of claims 11, 13, 16-19, 33, 34, 42, and 43 under § 103(a) are sustained, while the rejections of claims 20-30, 35-38, and 41 under § 103(a) are reversed.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 CFR § 1.136(a).

AFFIRMED-IN-PART

LEE E. BARRETT Administrative Patent Judge	)	
MICHAEL R. FLEMING Administrative Patent Judge	)	BOARD OF PATENT APPEALS AND INTERFERENCES
LANCE LEONARD BARRY Administrative Patent Judge	)	

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